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EXPERIENCE IN HANDLING BAD WATER COMPLAINTS AND LABORATORY CONTROL¹

BY EARL T. KIRKPATRICK

"The water that you are furnishing your consumers is dangerous. A neighbor of mine has typhoid fever contracted from the use of this water, and we are afraid to use it without first boiling it." These anxious words came over the telephone to the superintendent of a certain water company. To all those engaged in the management of water works they have doubtless become familiar and disagreeable words. Disagreeable not because they are true, for ninety-nine times out of a hundred they come from the users of water from dead ends where the water has acquired a slight taste or odor from some harmless microscopic growth or mineral and contains nothing in the way of pathogenic organisms, but disagreeable because of their daily insistent repetition, and the lack of the proper means for conveying to the consumer the facts concerning the true condition of the water. True the superintendent may order the dead end blown off, but this at best is only a temporary remedy and in three or four weeks he will again become the recipient of a similar alarmed message from the same neighborhood.

The Des Moines Water Company, in common with other water systems, has for a number of years had this problem to contend with. It was felt that a great amount of water was wasted on unnecessary blow-offs, and even when they were necessary nothing was done to remove permanently the consumer's suspicion of the water. A plan was therefore devised which had as its twofold aim the curtailment of this waste water and the education of its public in some matters relating to the sanitation of water. This plan is, in brief, as follows.

When a bad water complaint comes in, being as it is a question of the sanitary condition of the water, it is referred to the laboratory. Here it is given a serial number and filed in the "complaint

¹Read at a joint meeting of the Iowa and Illinois Sections at Moline, Illinois, on October 10, 1916.

book" together with the date, name and address and cause for the complaint, and the consumer is told that an early call will be made for the purpose of inspecting the water.

This serial number is then transferred to a map of the company's distribution system at the location of the complaint. This map together with the complaint numbers makes an excellent record of the complaints. It shows graphically the location from which the complaints are coming and makes a simple method for the routing of the trips on which the subsequent calls are made.

The call is then made upon the complaining consumer and the water examined. With the Des Moines water the majority of the complaints arise from dissolved iron. If there is only a slight amount of this iron present the usual complaint is that the water has a strange taste. In this case it is explained to the consumer that this taste is not due to the presence of disease-producing organisms or anything that would cause physical disorder, but is merely the taste of a small amount of iron which is considered beneficial to the human system. This explanation is ordinarily taken at its face value by the consumer and the main is not blown off.

If, however, there is a greater amount of iron present, the usual complaint will be that the water is unfit for laundry purposes. If on examination this statement is found to be true the end of the main is blown off. Sometimes on such occasions it is found that there is some sediment present. When this is the case this content is estimated by means of the Whipple sediment test. This consists in forcing a measured amount of the water, usually a quart, through a cotton felt disc which retains upon its surface the sediment contained in the water. The disc is taken to the laboratory, dried and mounted in a book making a graphic record of this condition of the water.

Another class of complaint comes from the citizen whose family is about to be taken from him by typhoid fever, resulting from the use of the grossly polluted city water. True they do not have the fever at the time of the complaint but the water has an odor and a taste which the complainant believes to have come from some pollution and so he regards the water as likely to contain the germs of typhoid fever. It is not surprising that this person should think that such a water contains disease germs. All his life he has heard that typhoid fever comes from the use of infected water and his "common sense" tells him that an unfamiliar odor in the water denotes in-

fection. In dealing with such complainants we endeavor to show them that they cannot rely absolutely upon the means which they have at hand to determine whether or not a water is fit to use. We explain if we can the cause for the unfamiliar odor and explain its perfect harmlessness. We also explain something of the purification system and endeavor to show the impossibility of typhoid being present. A sample is then taken for bacteriological examination. When this examination is finished we follow up our first call with a second showing the results of the examination and what they signify, and *do not drop the complaint until the consumer is convinced that the water is pure*. Almost invariably the consumer appreciates the efforts which the department has made in the investigation of his complaint and is willing to accept our statements concerning the purity of the water.

Before concluding any of these calls we try to leave the impression that we are not displeased to have received the complaint but are interested at all times in learning from our patrons the condition of our water. Our experience so far has been that the public has responded to this attitude and is more friendly towards the company. Chronic kickers who have been accustomed to call up the office every week or so to make some new criticism concerning the water seem to have lost interest in their self-appointed tasks since they have been encouraged to continue in their good work. Those who have truly been frightened concerning the condition of the water have, upon learning the true situation, gained more confidence in the purity of the water.

While the plan has been in use less than a year, during which time we have had much dry hot weather, conditions under which we normally receive the greatest amount of complaints, we have found that the results from the plan fully warrant the continuation of its practice.